

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 May 2004 (21.05.2004)

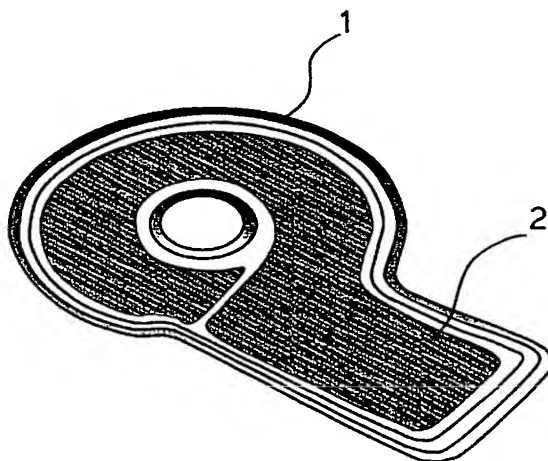
PCT

(10) International Publication Number
WO 2004/042132 A3

- (51) International Patent Classification⁷: D06F 58/26, H05B 3/26, F24H 3/04, D06F 39/04
- (21) International Application Number: PCT/EP2003/009928
- (22) International Filing Date: 8 September 2003 (08.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PN2002 A 000086
7 November 2002 (07.11.2002) IT
- (71) Applicant (for US only): IRCA S.P.A [IT/IT]; Viale Venezia 31, I-31020 San Vendemiano, Treviso (IT).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): VIRZI, Andrea [IT/IT]; Via Castellana 12/G, I-31100 Treviso (IT).
CAPRARO, Duilio [IT/IT]; Via Spalato, 8, I-31015 Conegliano, Treviso (IT).
- (74) Agent: GIUGNI, Valter; Propria S.r.l., Via Mazzini, 13, I-33170 Pordenone (IT).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: CONDUIT WITH IMPROVED ELECTRIC HEATING ELEMENT AND CLOTHES DRYING MACHINE PROVIDED WITH SUCH A CONDUIT



(57) Abstract: Conduit (1) for conveying and heating a flow of gas, comprising in its interior at least an electric heating element (2) formed by a thick-film layer, in which said electric heating element (2) works as a positive temperature coefficient (PTC) element and is arranged peripherally in relation to the gas flow cross-section of the conduit, i.e. is oriented in a substantially parallel manner to the flow direction of said gas, so that the latter is not even partially obstructed by such a thick-film layer. In a preferred manner, this heating element (2) is subdivided into a plurality of individual and distinct heating elements arranged (R1, R2, R3) in parallel and energized in a successive and cumulative manner so that the initial power input can be maintained within pre-established limits, while the power input under steady-state conditions is reduced to a quite lower value, which is however still sufficiently high as to ensure an acceptable power output level.

WO 2004/042132 A3



(88) Date of publication of the international search report:

10 June 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/09928

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 D06F58/26 H05B3/26 F24H3/04 D06F39/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 D06F H05B F24H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 154 066 A (WHIRLPOOL CORPORATION) 14 November 2001 (2001-11-14) claims; figures	1,2,4-6, 8
A	GB 1 502 919 A (HITACHI LTD) 8 March 1978 (1978-03-08) claims 1,4; figure 1	1,8
A	EP 0 485 211 A (IST LABORATORIES LTD) 13 May 1992 (1992-05-13) claims 1,8,12; figures 3,4	1,2,4, 6-8
A	EP 0 352 499 A (INDUSTRIE ZANUSSI S.P.A.) 31 January 1990 (1990-01-31) the whole document	1,8

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

3 May 2004

Date of mailing of the international search report

11/05/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Courrier, G

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/09928

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1154066	A	14-11-2001	DE 10022608 C1 DE 60101500 D1 EP 1154066 A2	25-10-2001 29-01-2004 14-11-2001
GB 1502919	A	08-03-1978	JP 51109556 A AU 8795375 A DE 2559035 A1 IT 1052768 B NL 7603081 A	28-09-1976 07-07-1977 07-10-1976 20-07-1981 28-09-1976
EP 485211	A	13-05-1992	AT 154690 T DE 69126594 D1 DE 69126594 T2 DK 485211 T3 EP 0485211 A1 ES 2103302 T3 US 5557704 A	15-07-1997 24-07-1997 04-12-1997 29-12-1997 13-05-1992 16-09-1997 17-09-1996
EP 352499	A	31-01-1990	IT 1225119 B EP 0352499 A2	02-11-1990 31-01-1990